REMARKS

Claim 11 has been amended to overcome a minor formal objection without being narrowed.

Claims 1-15 are otherwise presented for reconsideration in the light of the following authorities and remarks.

3. Claim 11 as previously presented stood rejected under 35 U.S.C. §112, Second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention because "said source" in line five had insufficient antecedent basis. Claims 11 has been amended without being narrowed by changing "said source" to --said signal path--. Accordingly, withdrawal of this ground of rejection is respectfully requested.

4. Claims 1 and 4-13 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Imazeki. The basis alleged for this rejection is set forth below:

> Regarding claim 1, Imazeki invention is directed to radio frequency receiver comprising circuit means for tuning the receiver to a plurality of frequencies within a range of frequencies which includes the selected signal and for producing an intermediate frequency signal corresponding to the frequency to which the receiver is tuned.
>
> In column 3 lines 13-37, figure 1 illustrates a RF receiver receives an RF signal having a frequency within a range of frequencies. Imateki further states that the frequency range may include frequencies from different designated frequency bands (e.g. VHF and UHF) to which it is desired to tune the receiver.
>
> In column 3 lines 37-68, the RF receiver in figure 1 further includes a frequency discriminator means in the form of an audio detector 20 coupled to IF amplifier 18. The frequency discriminator is responsive the received intermediate frequency (IF)signal for developing an output signal which has a DC component directly proportional to the deviation of the IF frequency from the predetermined frequency. In column 4, lines 49-68, in accordance to one aspect of the invention, the RF receiver in figure 1 further includes a detecting means in the form of center frequency detector 30 coupled to the audio detector 29 and responsive to the DC component, developed by an audio

detector 20, for developing a gating signal. The gating signal has a first value when the DC component is between pre-selected upper and lower threshold values and has a second value when the DC component is not between the upper and lower threshold values. Imazeki further states that by selecting the upper and lower threshold values very close to each other in accordance with features of the invention, the receiver in figure 1 may be set to enable audio signal reproduction only when the receiver is tuned to or very close to the center frequency of the received signal. In light of the foregoing teachings, the step of selecting the upper and low r threshold values very close to each other forms an equivalent threshold value I representative of the center frequency of a received frequency. Figure 3 illustrates the implementation of the center frequency detector 30 including a pair of voltage comparators 31 and 32 for setting the upper and lower threshold values.

Imazeki teachings do not expressly disclose the step of comparing the frequency of the desired received signal to a threshold frequency. Nevertheless, as recited above, the step of selecting the upper and lower threshold values very close to each other forms an equivalent threshold value representative of the center frequency of a received frequency. In column 6 lines 51-68, the DC component is applied to comparators 31 and 32, which produce a "low" output if the DC signal is more or less the equivalent threshold value and a "high" output if the DC signal is very close to or at the equivalent threshold value. It would have been obvious for one of ordinary skill in the art at the time the invention was made that comparators 31 and 32 perform the step of comparing the DC component, which is representative 'of the frequency of a received signal, with the threshold value, which is formed by selecting the upper aind lower threshold values very close to each other and represents the center frequency. It is not necessary to state a motivation since comparator, as well known in the art, perform the comparing step.

In column 5 lines 19-48, a scanner circuitry 40 in figure 2, provided between the switching circuit 23 (which is responsive to the signal developed by center frequency detector 30)and local oscillator 17, causes 'the variable tuning means to automatically and sequentially tune the receiver to the desired frequency which is the center frequency and stop when the scanner circuitry 40. The variable tuning means as taught by Imazeki includes thel local oscillator 17 which as known in the art is utilized to tune to a

frequency and produce a corresponding intermediate frequency signal. Hence, it would have been obvious or one of ordinary skill in the art at the time the invention was made that the variable tuning means causes the local oscillator 17 to tune to a frequency within the range of reception frequencies based on the comparison between the DC component and a threshold value (representative of a desired center frequency). The threshold value is more or less than the DC component, which is representative of the received frequency. Again, it is not necessary to state a motivation. since the local oscillator 17 performs the tuning process.

Regarding claim 4, as recited in claim 1, comparators 31 and 32 compare the DC component with the equivalent threshold value, formed by selectingl the upper and lower threshold values very close to each other, to produce a "low" outputs when the DC component is more or less than the threshold, and a "high" output when the DC component is at or very close than the threshold. In the case of "low" output, a scanning means in the form of scanner circuitry 40 causes the variable tuning means to automatically and sequentially tune the local oscillator to the desired frequency. lmazeki does not expressly disclose applying one of at least frequency offsets to the received frequency as claimed in the patent application. However, since adjusting the received frequency close to a desired frequency requires adding or subtracting a frequency offset value, one of ordinary skill in the art will appreciate that scanner circuitry applies a frequency offset to add or subtract to the received frequency based on results from the comparison between DC component and the threshold value. Hence, there are at least two frequency offsets for adding and subtracting in light of the aforementioned reasoning.

Regarding claim 5, the threshold value is representative of the center frequency of a desired frequency. One of ordinary skill in the art will appreciate that there are numerous cases that both frequency offsets have the same magnitude, e. g. received frequency at either end of frequency range.

Regarding claim 6, a range of frequencies is inherently bounded by high and low frequency values, defined by F_{HIGH} and F_{LOW} respectively. Since a threshold value in lmazeki invention is representative of center frequency, one of ordinary skill in the art will appreciate that mathematically, the first offset and second offset are equal or less than (FHIGH -FLOW)/2.

Regarding claim 7, since there is no specific range of frequencies in the claim, one of ordinary skill in the art will

appreciate that the first and second frequency offsets are inherently equal to an intermediate frequency of the receiver.

Regarding claim 8, said claim is rejected using similar argument as in claim 1 because both claims have similar scope. Furthermore, the claimed threshold frequency is the center frequency, which is taught in lmazeki invention.

Regarding claim 9, said claim is rejected using similar argument as in claim 1 because both claims have similar scope. Furthermore, in column 3 lines 18-32, lmazeki invention applies to frequency bands such as VHF and UHF. The range of frequencies as claimed in the patent application is within UHF band that covers from 2300 MHz to 2900 Mhz.

Regarding claims 10-11, referring back to figure 2, an RF receiver includes a local oscillator 17, an antenna 12 for receiving an RF signal within a predetermined range of frequencies, an audio detector 20, detecting means in the form of a center frequency detector 30.

lmazeki does not expressly disclose a source of signal representative of he frequency of a desired signal, and a frequency controller for providing a frequency control signal as claimed in the patent application. However, lmazeki discloses center frequency detector 30 including a pair of voltage comparators 31 32 that are set by potentiometers 35 38. Since potentiometers 35 38 are adjusted to a pm-selected voltage output representative of center frequency of a desired signal, it would have been obvious for one of ordinary skill in the art at the time the invention was made that potentiometers 35 38 are the source of signal representative of the frequency of a desired signal.

In column 6 lines 1-25, detecting means coupled to local oscillator 17 through the scanner circuitry 40 and potentiometers 35 36 develops a control signal in responsive to a DC signal component developed by detector 20. The control signal controls scanning means in the form of a scanner circuitry 40 through switching means in the form of switching circuit 23 for stopping the scanning only when the control signal has a value corresponding to the receiver being tuned to the frequency of a desired signal. Scanner circuitry 40 causes the local oscillator 17 to tune the receiver to a desired frequency. Hence, one of ordinary skill in the art will appreciate that detecting means is equivalent to a frequency controller as claimed in the patent application to due to similar functionalities. Furthermore, a mixer and filter 18 always sets1 the frequency of the local oscillator 17 to a frequency that

> differs from the frequency of a desired signal by an IF frequency and is within the predetermined range of frequencies.
>
> Regarding claim 12, in column 5 lines 19-48, lmazeki discloses the scanner receiver embodiment in figure 2 including variable tuning means to selectively and sequentially tune the receiver to the predetermined frequencies and produce a corresponding IF signal. lmazeki states that several known techniques for implementing variable tuning means including programmable frequency synthesizer circuits for the local oscillator to tune the receiver to the desired frequencies. Imazeki discloses in the background of the invention that a synthesized frequency generating circuit sometimes takes the form of a phase-locked loop circuitry. Hence, one of ordinary skill in the art will appreciate that a phase-locked loop could be implemented in the local oscillator as claimed in the patent application.
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> Regarding claim 13, the scope of said claim is similar to that of claims IO-I 1. Rejection arguments of claims 1 O-l 1 also apply here. Furthermore, in column 3 lines 18-32, lmazeki invention applies to frequency bands such as VHF and UHF. The range of frequencies as claimed in the patent application is within UHF band that covers from 2300 MHz to 2900 Mhz. Pp. 3-9.

These grounds of rejection are respectfully traversed.

"The mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification." *In re Gordon,* 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984).

And in *In re Kotzab*, 55 U.S.P.Q.2d 1313, 1316 (Fed. Cir. 2000), the Court said:

> [I]dentification in the prior art of each individual part claimed is insufficient to defeat patentability of the whole claimed invention. See id. [Dembiczak]. Rather, to establish obviousness based on a combination of the elements disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the applicant. See *In re Dance*, 160 F.3d 1339, 1343, 48 U.S.P.Q.2d 1635, 1637 (Fed. Cir. 1998), *In re Gordon*, 733 F.2d 900, 902, 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984). Even when obviousness is based on a single prior art reference, there must be a showing of a suggestion or motivation to modify the teachings of that reference. See *B. F. Goodrich Co. v. Aircraft Braking Sys.*

Corp., 72 F.3d 1577, 1582, 37 U.S.P.Q.2d 1314, 1318 (Fed. Cir. 1996).

Nothing in the reference remotely suggest the desirability of modifying what is there disclosed to meet the terms of the rejected claims.

The reference does not disclose "comparing the frequency of the desired received signal to a threshold frequency" as called for by all the rejected claims. Nor does the reference suggest the desirability of comparing the frequency of the desired received signal to a nonexistent threshold frequency. Nor does the reference disclose tuning the oscillator of the receiver to a frequency within the range of reception frequencies based on the nonexistent threshold frequency, that is less and more than the received frequency when the received frequency is above and below the nonexistent threshold frequency, respectively as called for by claims. Nor does the reference suggest the desirability of modifying what is there disclosed to tune the oscillator of the receiver to a frequency within the range of reception frequencies based on the threshold frequency, that is less and more than the received frequency when the received frequency is above and below the nonexistent threshold frequency, respectfully.

While the standard the standard FM reception band is from 88 to 108MHZ, there is no disclosure that local oscillator 17 has a frequency always within 88-108MHZ, let alone that is less and more than the received frequency in that band when the received frequency is above and below the undisclosed threshold frequency.

As to the additional basis for rejecting claim 4, the reference does not disclose any information on tuning local oscillator 17, let alone applying one of at least two frequency offsets to the received frequency that is added when the received frequency is greater than and less than the threshold frequency, respectively, nor remotely suggest the desirability of modifying what is there disclosed to include this added limitation.

As to the additional basis for rejecting claim 5, there is not the slightest suggestion of providing the nonexistent first and second offsets as having the same magnitude.

Regarding the additional grounds for rejecting claim 6, the reference does not disclose anything relating to first and second offsets being less than or equal to $(F_{LOW} + -F_{LOW})/2$, or

suggest the desirability of modifying anything there disclosed to meet this additional limitation in claim 6.

As to the additional limitation added by claim 7, the reference does not disclose that the first and second nonexistent frequency offsets are equal to an intermediate frequency of the receiver or suggest the desirability of modifying what is there disclosed to meet this added limitation.

As to the rejection of claim 8, the reasoning set forth above in support of the patentability of claim 1 is submitted to support the patentability of claim 8. The reference does not disclose the center frequency as a threshold frequency. The reference discloses the center frequency is that of the received signal (column 4, lines 65-68), which will dynamically change when the received signal changes as the user tunes to different stations. That is not the threshold frequency of the invention disclosed and claimed in this application. Nor does the reference disclose comparing the frequency of the desired received signal to the nonexistent threshold frequency and tuning the oscillator of the receiver to a frequency within the range of reception frequencies based on the threshold frequency, that is less and more than the received frequency when the received frequency is above and below the threshold frequency, respectively, wherein the range of frequencies is bounded by high and low frequencies F_{HIGH}, F_{LOW} respectively, the threshold frequency approximately equaling $F_{LOW} + (F_{HIGH} - F_{LOW})/2$, nor is there the slightest suggestion in the reference for modifying what is there disclosed to meet the limitations of this claim.

As to the rejection of claim 9, the reasoning set forth above in support of the patentability of claims 1 and 8 is submitted to support the patentability of claim 9, and nothing in the reference suggest the desirability of modifying what is there disclosed to meet the terms of claim 9, including that the range of frequencies is 2400MHz to 2485MHz inclusive. That range of frequencies is not specifically disclosed in the reference or the desirability of choosing that range.

Regarding claims 10 and 11, these claims call for the frequency controller being coupled to the local oscillator and the signal input for providing a frequency control signal to the local

oscillator that always sets the frequency of the local oscillator to a frequency that differs from the frequency of the desired signal by the intermediate frequency and is within the predetermined frequency range. Nothing in the reference remotely discloses this limitation nor the desirability of modifying what is there disclosed to meet this limitation.

As to the additional grounds for rejecting claim 12, claim 12 is dependant upon and includes all the limitation of claim 11 so that further discussion is submitted to be unnecessary.

As to the rejection of claim 13, the reference fails to disclose a frequency controller coupled to the local oscillator and the signal path for providing a frequency control signal to the local oscillator that always sets the frequency of the local oscillator to a frequency that differs from that of a received signal within the predetermined frequency range by the intermediate frequency and is within the predetermined frequency range, nor does the reference suggest the desirability of modifying what is there disclosed to meet these limitations. Nor does the reference disclose modifying what is there disclosed to choose the predetermined frequency range as between 2440MHz to 2485MHz.

Accordingly, withdrawal of the rejection of claims 1 and 4-13 as unpatentable over the reference is respectfully requested. If this ground of rejection is repeated, the examiner is respectfully requested to quote verbatim the language in the reference corresponding to each limitation in these rejected claims, and quote verbatim the language in the reference regarded as suggesting the desirability of modifying what is there disclosed to meet the limitations of these claims absent from the reference.

5. Claims 2, 3, 14 and 15 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Imai. The basis alleged for this rejection is set forth below.

> Regarding claim 2, in column 8 line 81 through column 7 line 60, figure 4 illustrates an embodiment of a super high frequency (SHF)band FM receiver in Imai et al. invention. FM receiver includes an input terminal 10a for receiving a first IF signal, a FM demodulator 40 supplying demodulation output to a second low pass filter (LPF) 42.
>
> Output of LPF 42 is representative of demodulation error voltage Vde, which is converted to a digital data value Dde through a 1st level shifter 66 and a first A/D converter 66. A

reference voltage source 46a, corresponding to a center frequency of the second IF signal, is provided and is converted to a digital data value Dref through a 2nd level shifter 70 and a second A/D converter 72. Imai et al. does not expressly disclose the step of comparing the frequency of the desired received signal to a threshold frequency as claimed in the patent application. Nevertheless, Imai et al. further discloses that the 1st level shifter 66 and the 2nd level shifter 70 match the demodulation error voltage Vde to the reference voltage Vref. A microcomputer 48 calculates a demodulation sensibility Sd based on the digital data value Dde and the digital data value Dref, and generates an automatic fine-tuning (AFT) data signal based on the result of the calculation to control the second local oscillator 24 to set a reception of the desired channel in the FM receiver. From the aforementioned teachings, one of ordinary skill in the art will appreciate that the 1st level shifter 66 and the 2nd level shifter 70 performs the comparison step as claimed in the patent application. Also, it would have been obvious for one of ordinary skill in the art at the time the invention was made that the microcomputer 48 supplies a channel tuning data to tune the second oscillator 24 to a frequency of the desired channel based on the comparison step of Dde and Dref.

Imai et al. does not expressly disclose the step of converting the desired received signal frequency to an index value as claimed in the patent application. However, one of ordinary skill in the art would appreciate that the process of converting the demodulation error voltage Vde into a digital data value Dde would be equivalent to converting the desired received signai frequency to an index value since the converted digital data value is representative of the desired received signal frequency and the digital data value of reference voltage Vref is representative of center frequency of desired channel frequency. The SHF band carries a set of channels, hence, the received digital data value Dde would represent one of channels in the SHF band.

Regarding claim 3, claims 2-3 have similar scope, hence, the same rejection argument of claim 2 applies here. Imai et al. does not expressly disclose the step of representing the threshold frequency as an index value as claimed in the patent application. However, one of ordinary skill in the art would appreciate that converting the voltage reference Vde, corresponding to the center frequency of a desired channel frequency, into a digital data value Dref would be equivalent to representing the threshold frequency

as an index value. Since the SHF band carries a set of channels, a voltage reference Vde could be set to represent a center frequency of each channel in the SHF band.

Regarding claim 14, claims 2 and 14 have similar scope, hence, the same rejection argument of claim 2 applies here. As shown in figure 4, the SHF band FM tuner 42 in figure 4 includes an input terminal 10a, a local oscillator 24, a mixer 22, and a FM demodulator. The input terminal l0a, mixer 22, and a FM demodulator constitute a signal path as claimed in the patent application. One of ordinary skill in the art would appreciate that the components 2nd LPF 42, 1st level shifter, 1st A/D converter 66, reference voltage source 48a, 2nd level shifter 70, 2nd A/D converter, microcomputer 48 form the frequency controller as claimed in the patent application and those components are coupled between signal path and 2nd local oscillator. With the foregoing reasoning, microcomputer 48 corresponds to the microprocessor as claimed in the patent application.

Regarding claim 15, lmai et al. does not expressly disclose the microprocessor causes the frequency controller to add frequency offset values as claimed in the patent 18-28 that the microcomputer 48 calculates a demodulation sensibility Sd based on digital signals Dde, corresponding to a received frequency, and Dref, corresponding to a reference voltage representative of a center frequency of a desired channel. The microcomputer 48 generates an automatic frequency tuning (AFT) data signal Daft based on the result of the calculation to control the second local oscillator 24. From the foregoing teachings, one of ordinary skill in the art would appreciate that the microcomputer 48 would generate a Daft to add a frequency offset if Dde is less than a Dref and add another frequency offset if Dde is more than a Dref. Pp. 9-13

These grounds of rejections are respectively traversed.

Like Imazeki, Imai fails to disclose comparing the frequency of the desired received signal to a nonexistent threshold frequency and tuning the oscillator of the receiver to a frequency within the range of reception frequencies based on the threshold frequency, that is less and more than the received frequency when the received frequency is above and below the threshold frequency, respectively as called for by claims 2 and 3 nor modifying what is there disclosed to meet these limitations of these claims. Nor does the reference disclose the frequency controller coupled to the local oscillator and the signal path for providing a frequency

control signal to the local oscillator that always sets the frequency of the local oscillator to a frequency that differs from that of a received signal within the predetermined frequency range by the intermediate frequency and is within the predetermined frequency range as called for by claims 14 and 15, nor suggest the desirability of modifying what is there disclosed to meet the limitations of these claims.

Accordingly, withdrawal of the rejection of claims 2, 3, 14 and 15 as unpatentable over Imai is respectfully requested. If this ground of rejection is repeated, the Examiner is respectfully requested to quote verbatim the language in the reference regarded as corresponding to each limitation in each of these rejected claims, and quote verbatim the language in this reference regarded as suggesting the desirability of modifying what is there disclosed to meet limitation in these claims not present in the reference.

What the Examiner is doing is using the claims being rejected as a template or blueprint for attempting to read the claims on the prior art. This practice is not permitted.

> Here, the Examiner relied upon hindsight to arrive at the determination of obviousness. It is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the prior art so that the claimed invention is rendered obvious. [15] This court has previously stated that "[o]ne cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention."[16] *In re Fritsch*, 23 U.S.P.Q. 2d 1780, 1784 (Fed. Cir. 1992).

In view of the forgoing amendment, authorities, remarks, and the inability of the prior art to anticipate, suggest or make obvious the subject matter as a whole of the invention disclosed and claimed in this application, all the claims are submitted to be in a condition for allowance, and notice thereof is respectfully requested. Should the Examiner believe that the application is not in a condition for allowance, the Examiner is respectfully requested to telephone the undersigned attorney at 617-521-7014 to discuss what additional steps the examiner believes are necessary to place the application in a condition for allowance.

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[15] 15 *In re Gorman*, 933 F.2d 982, 987, 18 USPQ2d 1885, 1888 (Fed. Cir. 1991). See also *Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 1138, 227 USPQ 543, 547 (Fed. Cir. 1985).

[16] *In re Fine*, 837 F.2d at 1075, 5 USPQ2d at 1600.

Enclosed is a $ 950.00 check for the Petition for Extension of Time fee. Please apply any other charges or credits to deposit account 06-1050, Order No. 02103-349001.

Respectfully submitted,

FISH & RICHARDSON P.C.

SEP 2 4 2004

Date:_____

Charles Hieken
Reg. No. 18,411
Attorneys for Application Owner

Fish & Richardson P.C.
225 Franklin Street
Boston, MA 02110-2804
Telephone: (617) 542-5070
Facsimile: (617) 542-8906

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